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[FI/FI]; Väikkylä 4 A 10, FIN-90100 Oulu (FI). **MATILAINEN, Arto** [FI/FI]; Vesalantie 9 A 2, FIN-90420 Oulu (FI).

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(74) Agent: **PAPULA OY**; P.O. Box 981, (Fredrikinkatu 61 A), FIN-00101 Helsinki (FI).

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(71) Applicant (*for all designated States except US*): **SONERA OYJ** [FI/FI]; Teollisuuskatu 15, FIN-00510 Helsinki (FI).

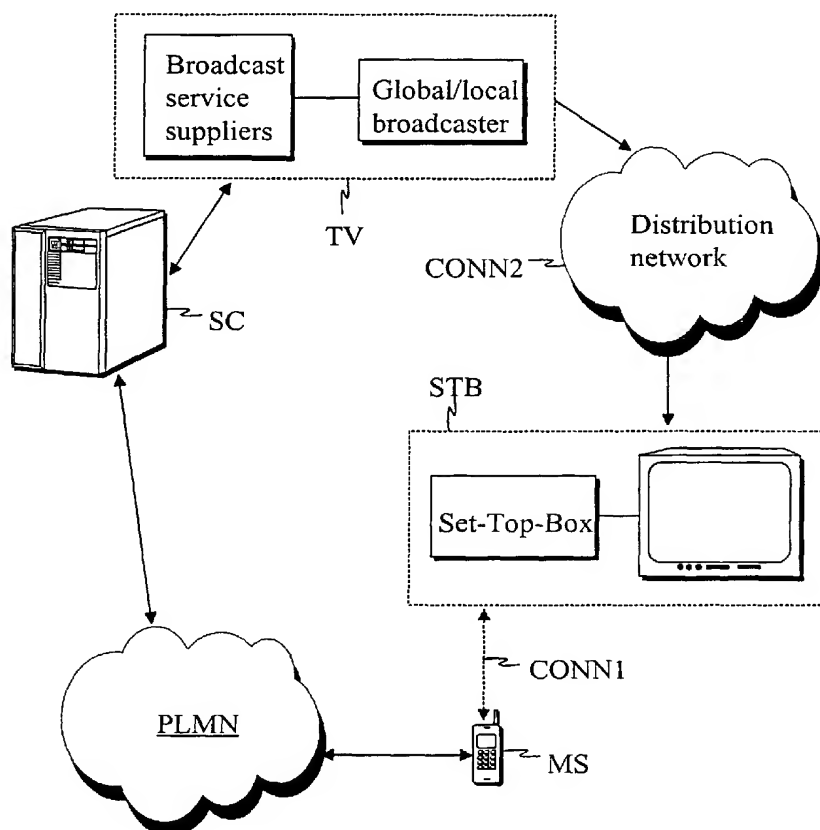
(72) Inventors; and

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(75) Inventors/Applicants (*for US only*): **POHJANEN, Petri**

[Continued on next page]

(54) Title: METHOD FOR CONTROLLING A TRANSMISSION



(57) Abstract: The present invention relates to a method for controlling the reception of a digital transmission and for receiving the additional information relating to a digital transmission into the terminal device (MS), in which method the provider of the digital transmission (TV) sends digital information to the receiving equipment and which digital information is displayed on the receiving equipment (STB) or on some other device attached to it. In the method in accordance with the invention, the decoding key entitling to the decoding of the digital transmission is transmitted to the terminal device (MS); the decoding key entitling to the decoding of the digital transmission is transferred to the receiving equipment (STB); and the digital transmission received is decoded with the aforementioned decoding key.



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METHOD FOR CONTROLLING A TRANSMISSION**FIELD OF THE INVENTION**

The present invention relates to telecommunication systems. In particular, the invention relates to a method for controlling the reception of a digital transmission and for receiving the additional information relating to a digital transmission by means of a terminal device, preferably a mobile station.

10 BACKGROUND OF THE INVENTION

The next step from an analogue television transmission is the digital television transmission. The digital television transmissions enable different additional facilities in conjunction with the actual television transmission.

The reception of a radio, television or video transmission currently requires a specific receiver. If it is a question about a digital television transmission, the requirement is either a receiver which is able to receive digital transmission directly, or by means of a decoding device (Set-Top-Box) attached to a traditional television. For the decoding, a smart card is inserted into the decoding device by means of which the possible encryption of a television transmission is decoded. The user may have several different smart cards required for the following of different channels by means of which s(he) gains access to the digital television network by set-top box equipment each time used by him or her. The problem caused by the several separate channel-specific smart cards has been tried to solve, e.g. in such a way that the set-top box equipment has been equipped with several separate card reader devices.

The above-mentioned solutions do not improve the position of the user in a situation in which s(he) would like to enable the following of a certain (en-

crypted) transmission or data information to be delivered in conjunction with the transmission by means of set-top box equipment each time used regardless of the place. Furthermore, the possible additional facilities
5 connected with certain smart cards, enabled by the digital transmission are available only in a case when a relevant smart card has been inserted into the set-top box equipment. The possible additional services are available only via one user, and this is why the
10 customized information services enabled by the digital transmission cannot be provided for each user separately.

OBJECTIVE OF THE INVENTION

15 The objective of the invention is to eliminate the drawbacks referred to above or at least significantly to alleviate them. One specific objective of the invention is to disclose a new type of method which enables one to control a functionality connected
20 with a digital transmission, preferably a television transmission, such as the coding of a television transmission and the reception of information to be delivered along with the television transmission flow by means of a terminal device, preferably a mobile
25 station.

BRIEF DESCRIPTION OF THE INVENTION

The present invention relates to the controlling of the equipment receiving a digital transmission, i.e. set-top box equipment, by means of a wireless terminal device, preferably a mobile station. In
30 the invention, the use of a wireless terminal device compensates the smart card possibly required for the decoding of a digital transmission.

35 The invention relates to a method for controlling the reception of a digital transmission and

for receiving the additional information relating to a digital transmission into the terminal device, in which method the provider of the digital transmission sends digital information to the receiving equipment and which digital information is displayed on the receiving equipment or on some other device attached to it.

According to the invention, the decoding key entitling to the decoding of the digital transmission is sent to the terminal device. The decoding key entitling to the decoding of the digital transmission is transmitted further to the receiving equipment and the received digital transmission is decoded using the aforementioned decoding key. The digital transmission is used to mean, e.g. a digital radio transmission, a digital video transmission or a digital television transmission.

The communication between the terminal device and the receiving equipment is advantageously implemented by a wireless or wired data transmission method. The terminal device is advantageously used to mean a mobile station. The terminal device may, however, be any other wireless device from which there is a connection to some wireless network.

In one preferred embodiment, the decoding key connected with the digital transmission is encrypted and/signed before sending it to the terminal device. The decoding key entitling to the decoding of the digital transmission is transmitted to the terminal device preferably via the mobile communication network.

In one preferred embodiment, feedback information relating to the digital transmission is sent from the terminal device.

In a preferred embodiment, data information relating to the digital transmission is transmitted to the terminal device.

The invention also relates to a method for controlling the reception of a digital transmission and for receiving the additional information relating to a digital transmission into the terminal device in
5 a telecommunication system comprising a terminal device, receiving equipment which is used to receive digital transmission, a first telecommunication connection which is arranged in between the terminal device and the receiving equipment, a service provider
10 who provides the digital transmission, a second telecommunication connection along which the receiving equipment receives digital transmission from the service provider, a receiving server from which there is a connection to the service provider and a telecommunication network via which the receiving server and the
15 terminal device are communicating with one another. In the method, the service provider sends digital information to the receiving equipment, which digital information is displayed on the receiving equipment or
20 on some other device attached to it.

According to the invention, certain receiving equipment is pointed out. This is advantageously used to mean the fact that the terminal device and the receiving equipment are communicating with one another
25 by a wireless or wired data transmission method. The wireless data transmission is advantageously used to refer to the Bluetooth technique. The menu connected with the digital transmission and the unambiguous identifier connected with the receiving equipment are
30 transmitted to the terminal device. The digital transmission is used to mean, e.g. a digital radio transmission, a digital video transmission or a digital television transmission. The menu is transmitted to the terminal device advantageously in the WAP/WML form
35 (WAP, Wireless Application Protocol; WML, Wireless Mark-up Language). The menu may be transferred to the terminal device also using some other corresponding

menu-formed structure by some wireless or wired method using a protocol or description language understood by the terminal device. The wireless method is advantageously used to refer to the Bluetooth technique, but
5 the method may be used to mean also any other corresponding wireless or wired connection-oriented data transmission channel or method of a short range.

The terminal device is advantageously used to mean a mobile station. The terminal device may, however,
10 ever, be any other wireless device from which there is a connection to some wireless network.

The unambiguous piece of identification information connected with the receiving equipment, the piece of identification information individualizing
15 the terminal device and information relating to the digital transmission is sent to the receiving server. The unambiguous piece of identification information of the receiving equipment may be encrypted and/or signed before transmitting the piece of identification information.
20 mation. The piece of identification information has been encrypted, e.g. with the public encryption key of the service provider and signed with the private signing key of the receiving equipment.

The receiving equipment transmits the information received from the terminal device further to
25 the service provider. Before transmitting the information the user may be certified by the receiving server. The certification means the user's right to perform the measures requested by him or her. The receiving server may add to the information to be transmitted to the service provider the digital signature
30 of the user of the terminal device and/or of the receiving server.

The service provider sends the decoding key
35 entitling to the decoding of the digital transmission to the terminal device of the user. The decoding key is sent to the terminal device preferably by way of

the telecommunication network. The telecommunication network is advantageously used to refer to the mobile communication network. The decoding key may, in addition, be encrypted and/or signed before sending it to the terminal device. The aforementioned decoding key is transferred to the receiving equipment. The decoding key may be transferred to the receiving equipment either automatically or via the measures taken by the user. The encrypted digital transmission received by the receiving equipment may now be decoded by means of the aforementioned decoding key.

In one preferred embodiment, data information relating to a digital transmission is being transmitted to the terminal device by way of the telecommunication network.

In one preferred embodiment, data information relating to a digital transmission is being transmitted to the terminal device via the receiving equipment.

In one preferred embodiment, feedback information relating to a digital transmission is sent from the terminal device to the receiving server and/or service provider.

Thanks to the present invention, a wireless terminal device, preferably a mobile station, can be connected as a part of an interactive transmission enabled by the digital transmission, thus enabling the independence of the place of reception of the transmissions. Furthermore, thanks to the present invention, there is no need to connect the receiving equipment (Set-Top-Box equipment) to a modem line.

Thanks to the invention, the user is no longer tied to use a separate card reader device with its several channel-specific cards, when s(he) wishes to follow a certain television transmission via desired set-top-box equipment. In addition, the invention enables the transmission of user-specific data

information only for those users who want it. The decoding of a possible encryption and the identification of the viewer/viewers of a program happens based on a piece of unambiguous identification information of set-top-box equipment instead of a DigiTV smart card.

BRIEF DESCRIPTION OF THE DRAWINGS

In the following section, the invention will be described in detail by the aid of a few examples of its embodiments, in which

Fig. 1 represents one advantageous system in which the method in accordance with the invention may be implemented.

Fig. 2 represents the functioning of the method in accordance with the invention by means of a signaling flow chart.

BRIEF DESCRIPTION OF THE INVENTION

The example as shown by Figure 1 comprises a terminal device MS and receiving equipment STB. The terminal device MS and the receiving equipment STB are communicating with one another via a first telecommunication connection CONN1. The terminal device MS is advantageously used to mean a mobile station. The mobile station MS may, however, be any other wireless device from which there is a connection to some wireless network. The term receiving equipment STB refers to a configuration formed by one or more devices by means of which it is possible to receive and display digital television transmission. In this example, the receiving equipment STB consists of a decoding device (Set-Top-Box) and a television receiver.

The system as shown in Figure 1 comprises also a service provider TV, a second telecommunication connection CONN2, which transmits digital television transmission to the receiving equipment STB, and a re-

ceiving server SC. The receiving server SC is communicating with the terminal device MS via the telecommunication network PLMN. The telecommunication network PLMN is preferably a mobile communication network. The
5 term service provider is in this example used to refer to an entity which produces and possible also transmits digital television transmission.

The first telecommunication connection CONN1 is advantageously used to mean a wireless connection.
10 The telecommunication connection CONN1 may be used to mean also a wired connection. The wireless connection is, e.g. a Bluetooth connection. The Bluetooth connection is used to mean a radio network of a short range in which information may be transmitted in two ways.
15 More information about the Bluetooth technique is available at the address www.bluetooth.com. The second telecommunication connection CONN2 is used to mean any connection between the service provider TV and the receiving equipment STB. This kind of connection is,
20 e.g. a satellite connection or a cable connection.

In this example, the service provider TV consists of the actual producer of the digital transmission and of a receiver along which the digital television transmission is sent to the receiving equipment
25 STB.

The receiving server SC acts as the recipient of the information sent by the terminal device MS and if necessary, transmits the received information further to the service provider TV.

30 In one embodiment as shown by Figure 1, the receiving equipment STB is used to mean equipment which is able to receive digital radio transmission.

In one embodiment as shown by Figure 1, the receiving equipment STB is used to mean equipment
35 which is able to receive digital video transmission.

In one embodiment as shown by Figure 1, the receiving equipment STB is used to mean a game console and a display device connected to it.

In one embodiment as shown by Figure 1, the
5 receiving equipment STB is used to mean a computer.

Fig. 2 is one advantageous flow chart illustrating the function of the present invention. The example as shown in Figure 2 comprises a mobile station MS, set-top-box equipment STB, a DigiTV Service Center SC and a service provider TV. The set-top-box equipment STB is used to refer to the receiving equipment presented in the claims and the DigiTV Service Center SC to the receiving server presented in the claims. Both the set-top-box equipment STB and the mobile station MS comprise the necessary facilities for using the Bluetooth technique. Furthermore, both of them are provided with the necessary facilities for using the WAP protocol. More information about the WAP protocol can be found at the address www.wapforum.org.

20 As shown by arrow 20, the service provider TV sends digital television transmission to the set-top-box equipment STB. The transmission has possibly been encrypted. The encryption is used to prevent the transmission from being seen by everybody. For decoding the transmission into a readable form, a specific
25 decoding key is needed.

As shown by arrow 21, the mobile station MS is identified. The user is identified, e.g. based on a subscriber identity module (SIM, Subscriber Identity
30 Module) or an unambiguous identifier attached to the Bluetooth part. The identification of the mobile station MS and its user happens, e.g. in such a way that having found a new terminal device supporting the Bluetooth interface in the near distance, the set-top-box
35 equipment STB sends, either on the user's request or automatically, the menu corresponding to the set-top-box equipment or the menu or information connected

with the digital television transmission to the user's terminal device. The automatic functionality as described above may be implemented in the set-top-box equipment STB, e.g. by means of the Java programming language. The menu is transmitted to the mobile station MS preferably in the WAP/WML form or as a menu-formed structure of a corresponding type. The menu may be transferred to the mobile station MS also using some other corresponding menu-formed structure by some wireless or wired method. The wireless method is advantageously used to refer to the Bluetooth technique, but the method may be used to mean also any other corresponding wireless or connection-oriented data transmission channel or method of a short range. Information to the mobile station MS and/or set-top-box equipment STB may be transmitted by any protocol or description language understood by the device or equipment. Examples of these are, e.g. HTTP (HTTP, Hyper-Text Transfer Protocol) and HTML (HTML, Hyper-Text Mark-up Language).

From the set-top-box equipment STB, the menu connected with the digital television transmission and/or set-top-box equipment STB is transmitted to the mobile station MS, arrow 22. The menu structure is transmitted to the mobile station MS, e.g. in the WML form over the Bluetooth connection. As displayed to the user, the menu structure corresponds to the normal management of WAP sites. In the same connection, the set-top-box equipment STB transmits the piece of unambiguous identification information associated with the equipment to the mobile station MS. This piece of identification information may be encrypted, e.g. with the public encryption key of the service provider utilizing the RSA algorithm (RSA, Rivest, Shamir, Adleman). Further, the piece of identification information may be signed with the private signing key associated with the set-top-box equipment STB.

The user of the mobile station MS acts in accordance with the instructions given by the menu presented and chooses to receive, e.g. the information relating to the television transmission in question.

5 Further, the user may give, e.g. feedback information to the service provider TV or to the DigiTV Service Center SC, if s(he) wishes to order, e.g. a decoding key for a desired digital television transmission, arrow 23. The feedback information may be used to mean
10 also, e.g. the payment of a transmission ordered, a voting measure etc. The transmission of information happens in such a way that the user selects the information desired by him or her and sends it preferably via the mobile communication network PLMN to the
15 DigiTV Service Center SC. Along with this information is transmitted also the information needed in the identification of the user and the unique piece of identification information associated with the set-top-box equipment STB.

20 The DigiTV Service Center SC is used to mean equipment which enables subscriber-specific profiles of certain kind. The user is certified in the DigiTV Service Center SC. This is used to mean, e.g. that the piece of identification information received from the
25 terminal device is compared to predetermined rights of use which define the users who have the right to use the services connected with the digital television transmission. In addition to this, the DigiTV Service Center SC enables one to implement the payment of the
30 transmission before ordering the actual decoding code.

The feedback information received by the DigiTV Service Center SC from the mobile station MS, or part of the received information is forwarded further to the service provider TV, arrow 24. To the in-
35 formation to be forwarded further on, the digital signature of both of the user and of the DigiTV Service Center SC may be added. The service provider TV acts

in accordance with the order received by the user and sends the decoding key needed in decoding the television transmission to the mobile station MS of the user either directly via the mobile communication network
5 PLMN or via the DigiTV Service Center SC, arrow 25. The decoding key to be sent to the user may be encrypted and/or signed before the transmission.

When the mobile station MS has received the decoding key certified by the service provider TV, it
10 is made available to the set-top-box equipment STB either automatically or via measures taken by the user, arrow 26. Now the user may follow the digital transmission certified by him or her. The user may browse the possible menus of information of data type to be
15 sent in conjunction with the digital transmission, such as information about an individual sportsman to be transmitted on request. In case a certain user in the vicinity of the set-top-box equipment wishes that data-formed information of certain type is delivered
20 separately to his or her terminal device, s(he) gives an order via the mobile communication network PLMN aided either by the DigiTV Service Center SC, arrow 28a, or directly to the service provider TV, arrow 28b. The desired information is delivered to this
25 separate user located in the vicinity of the set-top-box equipment STB to his or her terminal device either via the set-top-box equipment STB or via the telecommunication network PLMN. As the sender of the information acts the DigiTV Service Center SC, arrow 29a, or
30 the service provider TV, arrow 29b.

In the above example it has been presented that the DigiTV Service Center SC and the service provider TV are two different entities. In an embodiment as shown in Figure 2, the DigiTV Service Center SC and
35 the service provider TV are used to mean the one and the same entity.

In an embodiment as shown in Figure 2, in the vicinity of the set-top-box equipment, the viewers of a digital television transmission are certified. Therefore, it is possible, deviating from a normal
5 Formula One transmission, to deliver the information of one or more drivers to the terminal device of a separate viewer who has separately ordered the information and paid for it. At the same time the other viewers read the information sent in conjunction with
10 a normal television transmission either in a television receiver or in their own known terminal devices.

The invention is not restricted merely to the examples as referred to above, instead many variations are possible within the scope of the inventive idea
15 defined by the claims.

CLAIMS

1. A method for controlling the reception of a digital transmission and for receiving the additional information relating to a digital transmission, in which method the provider of the digital transmission sends digital information to the receiving equipment and which digital information is displayed on the receiving equipment or on some other device attached to it.
- 10 characterized in that the method comprises the steps of:
- transmitting the decoding key entitling to the decoding of the digital transmission to the terminal device;
- 15 transferring the digital key entitling to the decoding of the digital transmission to the receiving equipment; and
- decoding the digital transmission received with the aforementioned decoding key.
- 20 2. The method according to claim 1, characterized in that the communication between the terminal device and the receiving equipment is implemented by a wireless or wired data transmission method.
- 25 3. The method according to claim 1 or 2, characterized in that the decoding key entitling to the decoding of the digital transmission is encrypted and/or signed before transmitting it to the terminal device.
- 30 4. The method according to any one of the preceding claims 1, 2 or 3, characterized in that the terminal device is a mobile station.
5. The method according to any one of the preceding claims 1, 2, 3 or 4, characterized in that the decoding key entitling to the decoding of the digital transmission is sent to the terminal device by way of the mobile communication network.
- 35

6. The method according to any one of the preceding claims 1, 2, 3, 4 or 5, characterized in that feedback information relating to the digital transmission is sent from the terminal device.

5 7. The method according to any one of the preceding claims 1, 2, 3, 4, 5 or 6, characterized in that data information relating to the digital transmission is transmitted to the terminal device.

10 8. The method according to any one of the preceding claims 1, 2, 3, 4, 5, 6 or 7, characterized in that the digital transmission is used to mean a television transmission.

15 9. The method according to any one of the preceding claims 1, 2, 3, 4, 5, 6 or 7, characterized in that the digital transmission is used to mean a digital video transmission.

20 10. The method according to any one of the preceding claims 1, 2, 3, 4, 5, 6 or 7, characterized in that the digital transmission is used to mean a digital radio transmission.

25 11. A method for controlling the reception of a digital transmission and for receiving the additional information relating to a digital transmission in a telecommunication system comprising:

 a terminal device (MS);

 receiving equipment (STB) which is used to receive digital transmission;

30 a first telecommunication connection (CONN1) which is arranged in between the terminal device (MS) and the receiving equipment (STB);

 a service provider (TV) which produces digital transmission;

35 a second telecommunication connection (CONN2) along which the receiving equipment (STB) receives digital transmission from the service provider (TV);

a receiving server (SC) from which there is a connection to the service provider (TV);

a telecommunication network (PLMN) via which the receiving server (SC) and the terminal device (MS)

5 communicate with one another;

in which method the service provider (TV) sends digital information to the receiving equipment (STB) and which digital information is displayed on the receiving equipment (STB) or on some other device
10 attached to it.

characterized in that the method comprises the steps of:

pointing out certain receiving equipment (STB);

transmitting the menu connected with the digital
15 transmission and the piece of unambiguous identification information connected with the receiving equipment (STB) to the terminal device (MS);

sending the piece of unambiguous identification information connected with the receiving equipment
20 (STB), the piece of identification information individualizing the terminal device (MS) and information relating to the digital transmission to the receiving server (SC);

transmitting information received from the terminal device (MS) to the service provider (TV);
25

sending the decoding key entitling to the decoding of the digital transmission to the terminal device (MS) of the user;

transferring the aforementioned decoding key to
30 the receiving equipment (STB); and

decoding the digital transmission received with the aforementioned decoding key in the receiving equipment (STB).

12. The method according to claim 11,
35 characterized in that the piece of unambiguous identification information connected with the receiving equipment (STB) is encrypted and/or signed.

13. The method according to claim 11, characterized in that the decoding key entitling to the decoding of the digital transmission is encrypted and/or signed before sending it to the terminal device (MS).

14. The method according to any one of the preceding claims 11,12 or 13, characterized in that the terminal device (MS) is a mobile station.

15. The method according to any one of the preceding claims 11,12, 13 or 14, characterized in that the telecommunication network (PLMN) is a mobile communication network.

16. The method according to any one of the preceding claims 11, 12, 13, 14 or 15, characterized in that the decoding key entitling to the decoding of the digital transmission is sent to the terminal device (MS) by way of the telecommunication network (PLMN).

17. The method according to any one of the preceding claims 11,12, 13, 14, 15 or 16, characterized in that data information relating to the digital transmission is transmitted to the terminal device (MS) by way of the telecommunication network (PLMN).

18. The method according to any one of the preceding claims 11,12, 13, 14, 15, 15 16 or 17, characterized in that data information relating to the digital transmission is transmitted to the terminal device (MS) via the receiving equipment (STB).

19. The method according to any one of the preceding claims 11,12, 13, 14, 15, 15 16, 17 or 18, characterized in that the costs resulting from the chosen services are defined in the receiving server (SC).

20. The method according to any one of the preceding claims 11,12, 13, 14, 15, 15 16, 17, 18 or

19, characterized in that the communication between the terminal device (MS) and the receiving equipment (STB) is implemented by a wireless or wired data transmission method.

5 21. The method according to any one of the preceding claims 11,12, 13, 14, 15, 15 16, 17, 18, 19 or 20, characterized in that the communication between the terminal device (MS) and the receiving equipment (STB) is implemented by a Bluetooth connection.
10

 22. The method according to any one of the preceding claims 11,12, 13, 14, 15, 15 16, 17, 18, 19 20 or 21, characterized in that feedback information relating to the digital transmission is sent
15 from the terminal device (MS) to the receiving server (SC) and/or to the service provider (TV).

 23. The method according to any one of the preceding claims 11,12, 13, 14, 15, 15 16, 17, 18, 19 20, 21 or 22, characterized in that the menu
20 connected with the digital transmission is sent from the receiving equipment (STB) to the terminal device (MS) in the WAP/WML form or as a menu-formed structure of corresponding type by a protocol or description language understood by the terminal device (MS).

25 24. The method according to any one of the preceding claims 11,12, 13, 14, 15, 15 16, 17, 18, 19 20, 21, 22 or 23, characterized in that the user is certified in the receiving server (SC) before sending the information to the service provider (TV).

30 25. The method according to any one of the preceding claims 11,12, 13, 14, 15, 15 16, 17, 18, 19 20, 21, 22, 23 or 24, characterized in that
35 to the information to be sent from the receiving server (SC) to the service provider (TV), the digital signature of the user of the terminal device (MS) and/or of the receiving server is added.

26. The method according to any one of the preceding claims 11,12, 13, 14, 15, 15 16, 17, 18, 19 20, 21, 22, 23, 24 or 25, characterized in that the digital transmission is used to mean a digital television transmission.

27. The method according to any one of the preceding claims 11,12, 13, 14, 15, 15 16, 17, 18, 19 20, 21, 22, 23, 24, 25 or 26, characterized in that the digital transmission is used to mean a digital video transmission.

28. The method according to any one of the preceding claims 11,12, 13, 14, 15, 15 16, 17, 18, 19 20, 21, 22, 23, 24, 25, 26 or 27, characterized in that the digital transmission is used to mean a digital radio transmission.

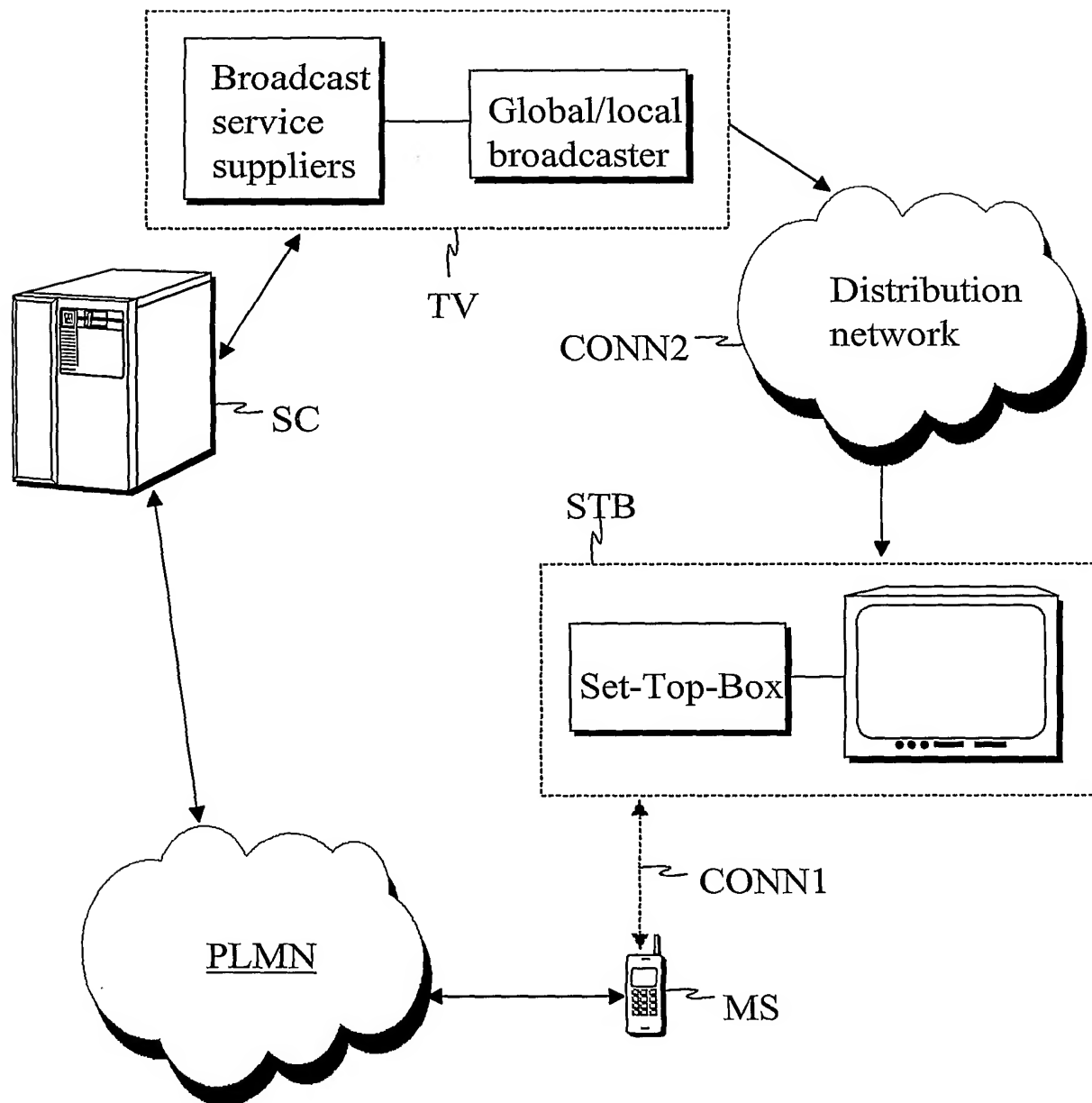


Fig. 1

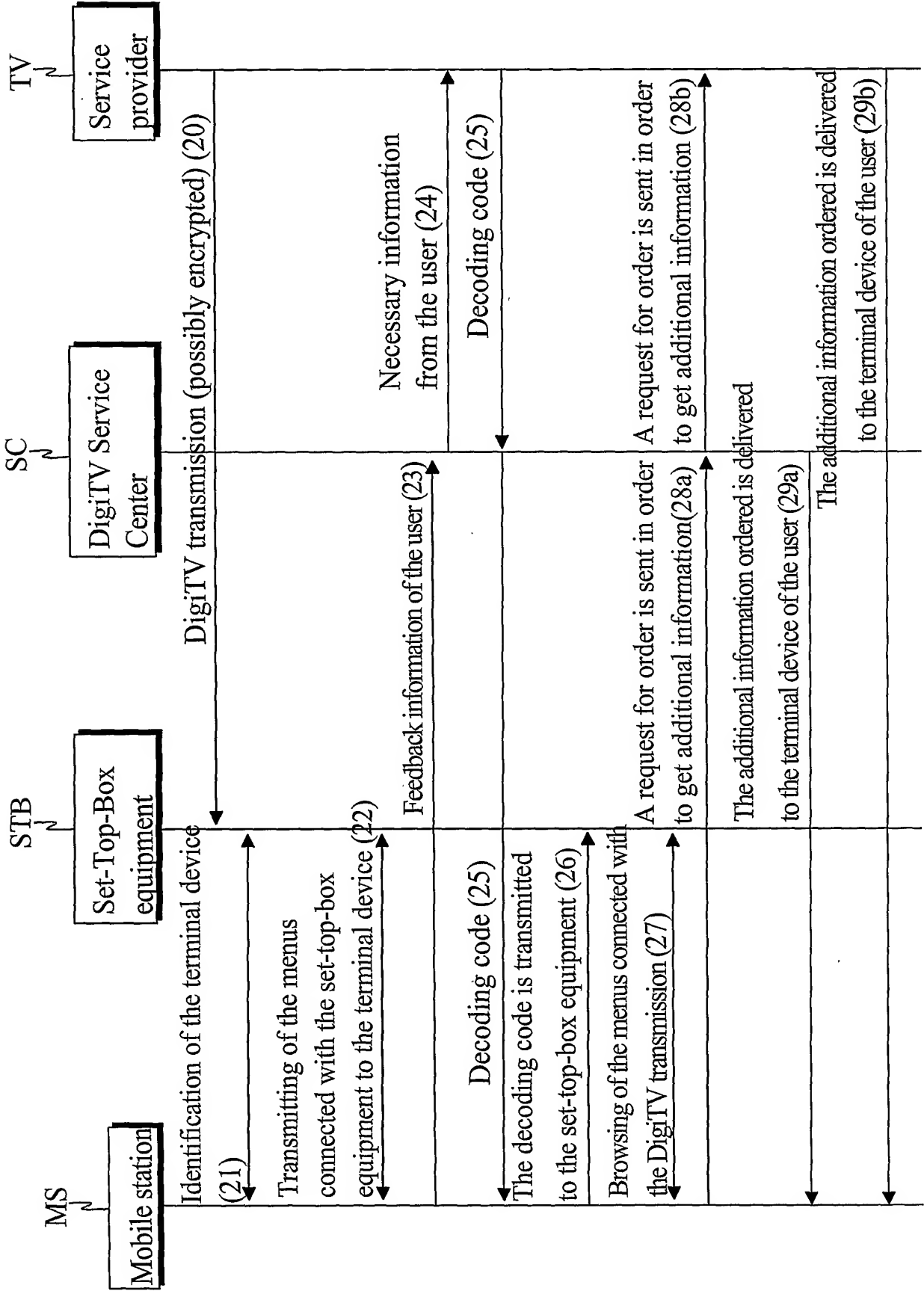


Fig. 2

INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 01/00328

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04B 7/26, H04N 7/173, H04L 12/28

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: H04B, H04N, H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI DATA, EPO-INTERNAL

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 4424380 A1 (DETEMOBIL DEUTSCHE TELEKOM MOBILNET GMBH), 18 January 1996 (18.01.96), column 3, line 37 - line 49, figure 2 --	1-28
X	WO 8503830 A1 (AMERICAN TELEPHONE & TELEGRAPH COMPANY), 29 August 1985 (29.08.85), abstract, claims --	1,11
A	WO 9856181 A1 (TELIA AB), 10 December 1998 (10.12.98), abstract, claims --	1-28
A	EP 0786876 A2 (TELIA AB), 30 July 1997 (30.07.97), claim 16 --	1-28

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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Name and mailing address of the ISA/
Swedish Patent Office
Box 5055, S-102 42 STOCKHOLM
Facsimile No. +46 8 666 02 86

Authorized officer

KRISTOFFER OGEBJER/EE
Telephone No. +46 8 782 25 00

INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 01/00328

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5898680 A (ROBERT L. JOHNSTONE ET AL), 27 April 1999 (27.04.99), claims 4,5 ----- --	1,11

INTERNATIONAL SEARCH REPORT
Information on patent family members

02/07/01

International application No.
PCT/FI 01/00328

Patent document cited in search report			Publication date	Patent family member(s)		Publication date
DE	4424380	A1	18/01/96	NONE		
WO	8503830	A1	29/08/85	BE	901801 A	17/06/85
				CA	1229385 A	17/11/87
				DE	3590072 T	15/05/86
				FR	2560473 A	30/08/85
				GB	2173379 A,B	08/10/86
				GB	8525575 D	00/00/00
				JP	61501301 T	26/06/86
				NL	8520023 T	02/01/86
				SE	8504939 A	21/10/85
				US	4890322 A	26/12/89
WO	9856181	A1	10/12/98	EP	0986911 A	22/03/00
				NO	995670 A	04/02/00
				SE	509582 C	08/02/99
				SE	9702146 A	06/12/98
EP	0786876	A2	30/07/97	AU	5130696 A	08/10/96
				DE	69602732 D,T	02/12/99
				DK	817685 T	13/12/99
				EA	128 B	00/00/00
				EP	0817685 A,B	14/01/98
				SE	0817685 T3	
				JP	11502153 T	23/02/99
				NO	970204 A	28/07/97
				SE	9600345 A	27/07/97
				US	5884854 A	23/03/99
				US	6047177 A	04/04/00
US	5898680	A	27/04/99	AU	733617 B	17/05/01
				AU	5161798 A	29/05/98
				CN	1240074 A	29/12/99
				EP	1021873 A	26/07/00
				IL	129639 D	00/00/00
				PL	333180 A	22/11/99
				WO	9820631 A	14/05/98
				ZA	9709604 A	28/04/99